



University of Jember
Faculty of Teacher Training and Education



UNIVERSITAS
JEMBER

PROCEEDINGS

3rd ICEGE 2020

The Third International Conference on Environmental Geography
and Geography Education

September 12th - 13th, 2020

at Faculty of Teacher Training and Education, University of Jember

PAPER • OPEN ACCESS

Preface

To cite this article: 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **747** 011001

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The Electrochemical Society

Advancing solid state & electrochemical science & technology

The ECS is seeking candidates to serve as the **Founding Editor-in-Chief (EIC) of ECS Sensors Plus**, a journal in the process of being launched in 2021

The goal of ECS Sensors Plus, as a one-stop shop journal for sensors, is to advance the fundamental science and understanding of sensors and detection technologies for efficient monitoring and control of industrial processes and the environment, and improving quality of life and human health.

Nomination submission begins: May 18, 2021



The Third International Conference on Environmental Geography and Geography Education (ICEGE) 2020

Sumardi

Editor in Chief of International Conference on Environmental Geography and Geography Education 2020

E-mail: sumardi.fkip@unej.ac.id

We would like to express our gratitude to all participants joining “The International Conference on Environmental Geography and Geography Education” (ICEGE). The 3rd International conference held by the Department of Social Science Education held by FKIP-University of Jember on 12-13 September 2020. The participants of this ICEGE 2020 are research students, academicians and researchers, scholars, scientist, teachers and practitioners from many countries.

Due to Covid-19, this conference was held in dual-mode, namely online and face to face. For those invited speakers from abroad who have travel restrictions presented their research topics through zoom cloud meeting. Likewise, participants who stay outside Jember city joined the conference virtually. Meanwhile, participants from within Jember city joined conference in person by complying the Covid-19 protocol.

Two hundred forty-eight participants attended this conference. The number of submitted papers were 219 and papers sent to the reviewers were 198. Two reviewers reviewed one paper. Each reviewer reviewed maximum 8 papers. Based on reviewer recommendations, finally the number of accepted papers is 130. Thus, the acceptance rate is 59,4 %.

In the plenary season, each invited speaker presented their presentations for 1 hour and 15 minutes for Q/A session. In the parallel session, each participant made the presentation for maximum 15 minutes and 5 minutes for Q/A session. The technology used in the parallel session is zoom cloud meeting with 13 breakout rooms.

This conference becomes a dissemination forum for scientists working on theoretical and empirical research of environmental geography, transportation geography, geography education, social science and its application. This conference's mission is to become an annual international forum in the future, where civil society organization and representative research students, academics and researchers, scholars, scientists, teachers, and practitioners from all over the world could meet and exchange an idea to share and discuss about research. The aim of the second conference is to present and discuss the latest research that contributes to the new ontological, epistemological and axiological knowledge and



to a better understanding in the area as follows:(1) Environmental Geography; (2) Geography Information System and Remote Sensing; (3) Geomorphology; (4) Natural Disaster; (5) Economics; (6) History; (7) Education; (8) Humanities; (9) Social Sciences and (10) Global Science and Studies.

On behalf of the organizing committee, finally we gratefully acknowledge the support from the FKIP-University of Jember of this conference. We would also like to extend our thanks to all lovely participants who have been joining this unforgettable and valuable event.

Assoc. Prof. Dr. Sumardi, M.Hum



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The committees of the Third International Conference on Environmental Geography and Geography Education would like to express gratitude to all Committees for the volunteering support and contribution in the editing and reviewing process.

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Peer review statement

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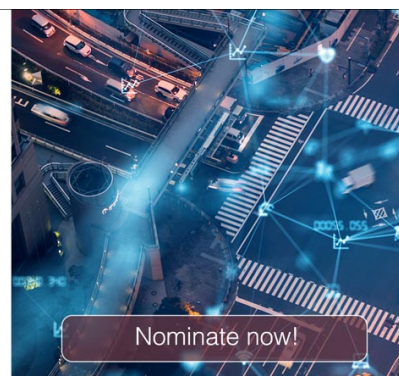
The Electrochemical Society

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a journal in the process of being launched in 2021

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Nomination submission begins: May 18, 2021



Peer review statement

All papers published in this volume of IOP Conference Series: Earth and Environmental Science have been peer reviewed through processes administered by the Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a proceedings journal published by IOP Publishing.

- **Type of peer review:** Double-blind review. The authors and the reviewers do not know each other. The managing editor send the papers to the reviewers by hiding the authors' name and their affiliation.
- **Describe criteria used by Reviewers when accepting/declining papers. Was there the opportunity to resubmit articles after revisions?** There were 13 aspects of assessment for accepting/declining papers, i.e. Clarity of abstract, Significance of research, Sufficiency state of the art, Contribution to the field (novelty), Research objective, Appropriateness of the research method, Relevance and clarity of drawings, graphs and tables, Experimental/evidential support, Quality of data or findings, Discussion and conclusions, Direction for future research and recommendations, Clarity of English, Writing style (according to EES format). There are no opportunities to resubmit papers after rejection. For the revised papers regarding to reviewer comments, they should resubmit their papers.
- **Conference submission management system:**
<https://easychair.org/conferences/?conf=icege2020>
- **Number of submissions received:** 219
- **Number of submissions sent for review:** 198
- **Number of submissions accepted:** 130
- **Acceptance Rate (Number of Submissions Accepted / Number of Submissions Received X 100):** 59,4 %
- **Average number of reviewers per paper:** 2
- **Total number of reviewers involved:** 50
- **Any additional info on review process (ie. plagiarism check system):** We used TURNITIN software to check the plagiarism issue during the review process.



- **Contact person for queries:**
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Universitas Jember, Indonesia
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3rd International Conference on Environmental Geography and Geography Education, 12 September 2020, East Java, Indonesia

Accepted papers received: 12 April 2021

Published online: 12 May 2021

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OPEN ACCESS Landslides susceptibility mapping based on geospatial data and geomorphic attributes (a case study: Pacet, Mojokerto, East Java) 012002

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N Wahyuningtyas, N Laila and F Andini

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A Z Ensiyawati, Sumarmi and I K Astina

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A Masrukhin, R Anwar and H Sriyanto

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W D Sulisty, M N L Khakim, N Jauhari and A D Setyawan

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OPEN ACCESS The perspective of geography education students on the implementation of online learning during covid-19 pandemic 012012

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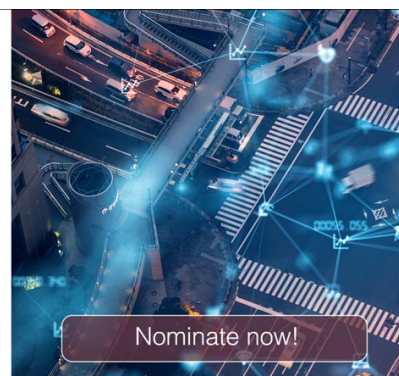
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Schoology effectivity as history learning environment during industrial revolution 4.0 era

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Abstract. History learning experiences dilemmatic issues over Industrial Revolution 4.0. Therefore, it needs excellence abilities to adapt into learning strategies in order to be accord upon students' needs. Gen Z characteristics posses pros and cons encourage educators to shift the thinking paradigm and teaching technique. Technology utilization as inseparable aspect of students living has become undoubtedly. Technology immense advance has derived learning innovation, both online or offline. This research and development attempts to develop history learning environment that is packed with schoology. Based on preliminary research, teachers engaged 87,91% power point, 2,19% Video and 9,9% without media hence students became less interested during learning. The solution being proposed is utilizing schoology with ASSURE model. Learning Management System (LMS) with schoology allows teacher to generate, manage, and share the contents and resources. Content Expert validation result obtains 80% is qualified very eligible, design expert validation obtains 89% is qualified very eligible and language expert result obtains 90% is qualified for very eligible. Research results indicate that schoology has improved learning outcomes and very effective upon learning process of history. Recommendation of this research and development needs to be optimized regarding students potential through other innovative design which engages technology during learning activities.

1. Introduction

The world has shift into Industrial Revolution 4.0 era which is characterized by immense advances in digital technology. Technology advance have allowed the emergence of distance learning and encouraged greater innovation both online and offline teaching methods [1]. Once a learning engages technology in a suitable learning environment, students do not learn from technology, but learn with technology [2]. The significant development of technology assists students to learn and acquire knowledge and skills, beside the classroom effectively. Thus, blended learning, flipped classrooms, MOOCs, LOOCs and E-learning change the learning environment setting nowadays [3]. Digital gadgets utilization upon everyday life facilitates IT devices integration into education [4]. These changes gain an impact towards History learning. Hence, history learning deals a dilemma over the Industrial Revolution 4.0. Therefore, educators are required to be innovative in understanding the needs of students as Z Generation .

Z Generation main feature is skillful literate towards technology. This is a challenge for educators in History learning. Students prefer technology than books, and hope that technology is used as a learning tool [5]. Research results from Schmid and Petko (2019) stated that 86.4% of students engaged digital technology at school, 9.14% stated never used, 4.42% stated they did not know [6]. The students focus on IT-integrated learning innovations and students' insights about the learning environment are important for students [7]. In reality, students during the learning process prefer to interact with technology rather than with educators [8]. This is in accordance with other characteristics of Z Generation, namely obtain isolated personality, focus on lifelong learning, integrated internet environment and possess a lot of knowledge about new technology [9]. Generation Z's preferred communication through text messages, learning on websites using Learning Management System



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(LMS) [10]. Another way that educators could use technology in learning is media utilization that accommodates the needs and goals of learning [11]. Technology utilization is one way to make the learning process more innovative, thus encouraging students to establish learning outcomes [12]. The IT-based learning environment setting as described above is a challenge for history educators to achieve the goal of learning history.

History learning has several objectives, namely: (1) Explains the understanding of at least one period or culture of History; (2) Understands various conceptual approaches to interpreting the past; (3) explaining historical processes and historians shaping the present and future; (4) identifies and interprets historical sources, (5) analyzes historical problems with conducting research in accordance with the methodological and ethical history of the discipline; (6) Examines historical evidence, knowledge and describing changes from the past; (7) Builds arguments or narratives based on evidence in audio, digital, oral, visual or written form; (8) Identifies and reflect critically the knowledge and skills developed in historical studies [13]. Based on the formulation of these objectives, it appears that the integration of IT in history learning is a necessity, thus history educators are expected to change the paradigm of thinking and innovating in their learning.

Regarding the learning environment setting used within schools, the results of preliminary observations at 3 SMA in Probolinggo Regency, showed that (1) History Learning engaged 87,91% power point, 2,19% Video and 9,9% Without media; (2) Media was needed for learning history, being utilized with 8.80% historical films, 1.09% power points, 74.74% E-Learning, 12.08% mobile phones, 3.29% internet. Furthermore, as a consideration for the development of learning environment settings, an analysis of the characteristics of students was conducted. The results showed that 75% of students could only memorize and mentioned 1-3 maritime kingdoms in Indonesia and 25% stated that they did not know. Based on the analysis of the learning style questionnaire, the results of the visual learning style were 52.33%, the audio learning styles were 22.33% and the kinesthetic results were 25.33%. Based on performance analysis and the results of the initial ability questionnaire and general characteristics and learning styles, innovation in formulating a historical learning environment is packaged in Schoology.

It is expected that history learning issues could be dealt by formulating a history learning environment using Schoology. Schoology is a Learning Management System (LMS) that allows educators to create, manage, and share content and resources [14]. Consider this media selection, Schoology is premier to Moodle and Edmodo, as it presents advantages that are not found in other platforms [15] [16] [17]. The advantages of Schoology, Schoology provides convenience since it is accessible via a smartphone for free. Overall, the Schoology design encourages students to perform learning activities inside and outside the classroom [18]. The advantages of Schoology are Stay Connected, Extend Class Time, Manage on the Go [19]. Based on the description above, an innovative idea can be put upon history learning, in the term of schoology. This study aims to develop and examine the effectiveness of schoology as a historical learning environment in the Industrial Revolution Era 4.0".

2. Methods

This type of research is Research and Development (R&D). The development research procedure performed towards development of a learning environment using Schoology in history subjects in class XI SMA is ASSURE model developed by Smaldino, et al. The ASSURE model consists of the following six stages: (1) Analyzes learner characteristics; (2) States performance objectives; (3) Select methods, media, and materials; (4) Utilizes materials; (5) Requires learner participation; and (6) Evaluates and revizes. The stages were being performed as follows:

Table 1. Research Stages of ASSURE Model

Step	Activity
Analyzes Learner Characteristic	Researchers conducted interviews and distributed questionnaires to find out

States performance objective	<p>data on general characteristics, initial abilities and learning styles.</p> <p>Researchers formulate learning objectives based on Core Competencies and Basic Competencies, then history learning objectives can be formulated. The formulation is carried out using the ABCD formula (Audience, Behavior, Condition, Degree).</p>
Selects methods, media, and materials,	<p>The researcher chose the learning method, namely Discovery Learning, the media used, namely Schoology, as a learning environment and the material to be taught, namely the Maritime Kingdom in Indonesia. This is based on a needs analysis and an analysis of the students' initial abilities.</p>
Utilizes materials	<p>Researchers carried out (1) reviewing the Schoology learning environment (preview materials) by means of being reviewed by experts and users; (2) prepare learning materials (prepare the materials), namely researchers prepare materials including supporting infrastructure for the learning process (3) prepare the environment (prepare the environment), namely researchers prepare a supportive environment to carry out the learning process such as ICT cleanliness, availability of Wifi, availability of electricity, room lighting and air circulation. (4) prepare students (prepare the learners), namely preparing students to be ready to carry out learning.</p>
Requires learner participation,	<p>Researchers create a learning environment in history learning. The next step for educators to create learning activities by presenting knowledge and skills developed logically and systematically. At this stage carrying out trials in the learning environment with Schoology.</p>
Evaluates and revises	<p>Researchers conducted an evaluation to measure the improvement in learning outcomes after using a learning environment with Schoology.</p>

Schoology quality, based on expert validation is measured using the following formula.

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

Details:

P : percentage

$\sum X$: the total number of respondents' answers

$\sum Xi$: the total number of ideal scores in 1 item

100% : constant

The calculating result of questionnaire percentage then would be analyzed through product eligibility criteria. The following table shows the product eligibility criteria [20].

Table 2. Product Eligibility Table

Achievement Level	Qualification
76% ≤ Score ≤ 100%	Very Eligible
51% ≤ Score ≤ 75%	Eligible
26% ≤ Score ≤ 50%	Eligible Enough
0% ≤ Score ≤ 25%	Ineligible

(Source : Basar SK, Wotto and Belanger, 2018)

In this study, to measure the level of students' learning outcomes, the criteria for student learning outcomes were adopted from Salazar [21].

Table 3. Learning Outcomes level criteria

Score Level	Qualification
96-100	Excellent
86-95	Very Good
69-85	Good
50-68	Fair
0-49	Failed

(Source: Salazar, 2016)

3. Results and Discussion

3.1. Schoology as a Learning Environment

In a modern learning environment, technology-integrated classrooms and educators as facilitators using the Student Centered Learning approach would likely improve students' participation and facilitate independent learning, small groups, and the entire class to achieve the goals. The rapid utilization of information and communication technology (ICT) in education has changed from Teacher Centered Learning approach to Student Centered Learning [22]. The innovative learning environment is the result of a constructivist approach to construct knowledge by employing Information and Communication Technology (ICT) environment [23]. In a constructivist learning environment, students are encouraged to actively build knowledge, understand and establish their own picture [24]. Technology integrated learning environment could create interactive and innovative learning, since the basic needs of learning are available resources [25]. Therefore, the learning environment setting with Schoology can be used as an alternative to create a technology-based learning environment with the Student Centered Learning approach.

In the term of Student Centered Learning learning, the involvement of students is the most important point and put educators as facilitators. The advantages of Schoology in learning are the

features in schoology, then educators could generate the problem material, learning resources, assignments and quizzes to students via online. During online discussions, the role of educators is critical to guide students in improving the quality of learning management systems (LMS) and students' understanding of learning resources [26] [27] [28]. Learning using online discussion has been shown to support social interaction and academic development of students [29] [30]. Schoology could be defined as online learning, classroom management, and social networking platform to enhance learning through better communication, collaboration, and increased access to additional curriculum and content [31]. Schoology presents a new style and a new learning environment as learning can take place anywhere, namely at home, library, or other public areas as long as the internet is available [32]. Schoology has the advantages needed by Z Generation students, it allows to create an integrated learning system and active, interactive and effective learning in the implementation of learning and students could learn independently through mobile devices which can be performed anytime and anywhere [33]. Another advantage of schoology is it could be used in mobile learning, hence that it is convenience. Learning using mobile learning increases learning achievement [34]. Mobile learning aims to provide students with useful involvement to get more interesting learning situations, that it would obtain a positive consequence on learning achievement and independent learning outside the classroom [35]. The feasibility of Schoology in creating a learning environment is proved from prior research conducted. Based on research by DeBoer & Haugen (2019) which states Schoology increases student engagement in class, eliminates time previously spent listening to educators passively and assessment scores increase, and overall student scores improve [36]. Research by Lobo (2016) in his research related to Schoology utilization to increase learning activities explained the results can increase learning activities by a percentage of 88.52% [37]. Based on the description above, the learning environment setting with schoology is expected to improve the learning outcomes of history.

3.2 Expert Validation Results

The following shows the results of expert validation, including field experts, content, media and learning design experts.

3.2.1 Field Expert Validator

The validator for this field of study in Schoology is Drs. Sumarno, M.Pd. The validation result gained 88% with Very Eligible qualifications. The suggestions and recommendation given by the validator in the field of study are as follows:

Table 4. Expert Suggestions and Recommendations

No.	Comments and Suggestions
1.	Maps are convenience for students to understand
2.	For illustrations, prepare maps/pictures that are simple for students to understand

(Source: Primary data processed)

After receiving the suggestions and recommendations of experts in the field of study, the researcher revised the contents of the field of study based on suggestions and recommendation, thus so schoology was feasible to be implemented.

3.2.2 Validation Results of Design and Learning Media Expert

The Design and Learning Media Validator who assessed Schoology was Mr. Yanuar Nurdiansyah, S.T, M.Cs., The results of the Design and Learning Media validation achieved a percentage of 89% with Very Eligible qualifications. The suggestions and recommendation from design and learning media experts were as follows:

Table 5. Results Expert Suggestions and Recommendation Learning Design

No.	Suggestions and Recommendations
1	The Schoology application is interesting, space for photos, videos is also quite large. It's just that this application by default means that it cannot change the appearance of the color, it only plays on the contents of the content. The interaction between educators and students is quite good because there are group facilities and can chat. The Schoology application is ready to use.

(Source: Primary data processed)

Within comments from design and instructional media experts, the assessment of schoology provides very interesting comments and mentions its advantages so that schoology is feasible to be implemented.

3.2.3 Linguistic Validation

The linguist who assesses Schoology is Mrs. Anita Widjajanti, S.S, M.Hum. The result of language validation reaches a percentage of 90% with Very Eligible qualifications. The comments and suggestions from linguists are as follows:

Table 6. Results of Suggestions and Recommendation on Learning Design Expert

No.	Suggestions and Recommendation
1	Communicative Language. Some spelling mistakes need to be corrected.

(Source: Primary data processed)

After receiving recommendation and suggestions from expert, the researcher revised the contents of the language field based on the comments and suggestions of linguists so that the schoology was feasible to be implemented.

3.3. Effectiveness of Schoology as a learning environment

In this study, to determine the effectiveness of the learning environment with schoology using the achievement of student learning outcomes. Student learning outcomes were employed to assess the effectiveness of technological devices in learning [38] [39]. Therefore, the utilization of increased learning outcomes as an assessment of the learning environment with schoology to assess its effectiveness in learning. Within this study, the normality test used was Shapiro-Wilk test. The Shapiro-Wilk Test being used since sample that was tested was 31 students. The Shapiro-Wilk test is more suitable for small sample sizes (<50 samples) [40]. The results of the Normality Test can be seen in Table 8 below.

Table 7. Shapiro-Wilk Normality Test Results

Pre/Post Test	Shapiro-Wilk			Information
	Statistic	Df	Sig,	
Pre	0,951	31	0,161	Normal
Post	0,944	31	0,109	Normal

Based on the table data above, the pre-test and post-test data with significance, (Pretest = 0.161) and (Posttest = 0.109) are greater than 0.0, thus that the pre-test and post-test data are normally distributed. Furthermore, after identifying that the data is normally distributed, the Paired T-Test was performed with the results of the data below:

Table 8. Result of Paired T-Test

Value	Mean	Std. Deviation	Sig. (2-tailed)
Pre Test	47,479	8,045	0,00

Post Test	80,443	6,248
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Based on the table above, it shows a significance value of 0.00 less than 0.05, hence there is an effect of the learning environment setting with schoology on students' learning outcomes and the results of data processing, the pretest average value of student learning outcomes is 47.476 in the "Failed" category. However, after the implementation of the learning environment setting with schoology, the post-test mean score increased by 80.443 in the "Good" category. Research regarding technology use assumes that technology facilitates active learning as technology uses authentic and complex problems that cognitively engage learners and challenge their thinking processes [41]. Z Generation is looking for learning experiences that are authentic and meaningful, more independent, using online means of research, communicating with others to consider their own decisions [42]. Z Gen need for communication, online research is conducted with a learning environment with Schoology in a way that students can directly communicate and discuss with friends and conduct research online with the schoology setting as a learning environment. History learning also needs to present historical events to take lessons from students [43]. The process of presenting historical events and attracting interest can be performed with videoassistance, image and audio media and other supporting media. Schoology is also supported by various forms of media, such as; video, audio, and images that can attract students' interest in the learning process [44]. In addition, Schoology can be accessed and studied by educators, students and parents. Schoology can also be used in lifelong learning, since schoology is accessible anywhere and anytime. The results of this study strengthen other research, based on research conducted by Rinenggo & Murdiono (2020) which states that learning with schoology improved student learning outcomes [45]. Research from Sari, et al (2020) which states that the results of the study show that Schoology can be an effective way to increase student engagement and motivation resulting from improved student performance [46]. Research from Wijayanti & Fitriana (2019) states that the results of application in the classroom reveal the effectiveness of Schoology in increasing student activity and student learning outcomes. [47] (94.64%) with higher scores in summative tests [48]. Research by Roqobih & Ambarwati (2020) states that schoology can improve student learning outcomes [49]. Research by Burgstrom (2017) which states that an increase in the average learning achievement of students by learning using Schoology [50]. Based on the above statement the learning environment setting with schoology can improve student learning outcomes so that it is effectively used in history learning.

4. Conclusions

The conclusion of this study is content expert validation obtains a score of 80% with Very Eligible qualifications, design expert validation achieves 89% with Very Eligible qualifications and language validation gets a total percentage of 90% with Very Eligible qualifications. The results of the study environment study with Schoology tested the significance level of the data normality, then the normality test was performed with the results of the normal pre-test and post-test data. The results also showed that the posttest score (80,443) was higher than the pretest score (47,479). Therefore, there was an increase in learning outcomes. The result of paired sample t-test for significance data with the result that the 2-tailed significance is 0.000 which states that there is a very significant difference from the use of Schoology. Based on these results, it can be concluded that the learning environment with Schoology is proven to be effective for improving student learning outcomes. Research and development recommendations for other innovative IT-based learning environments need to be optimized, so that the potential of students can be optimized.

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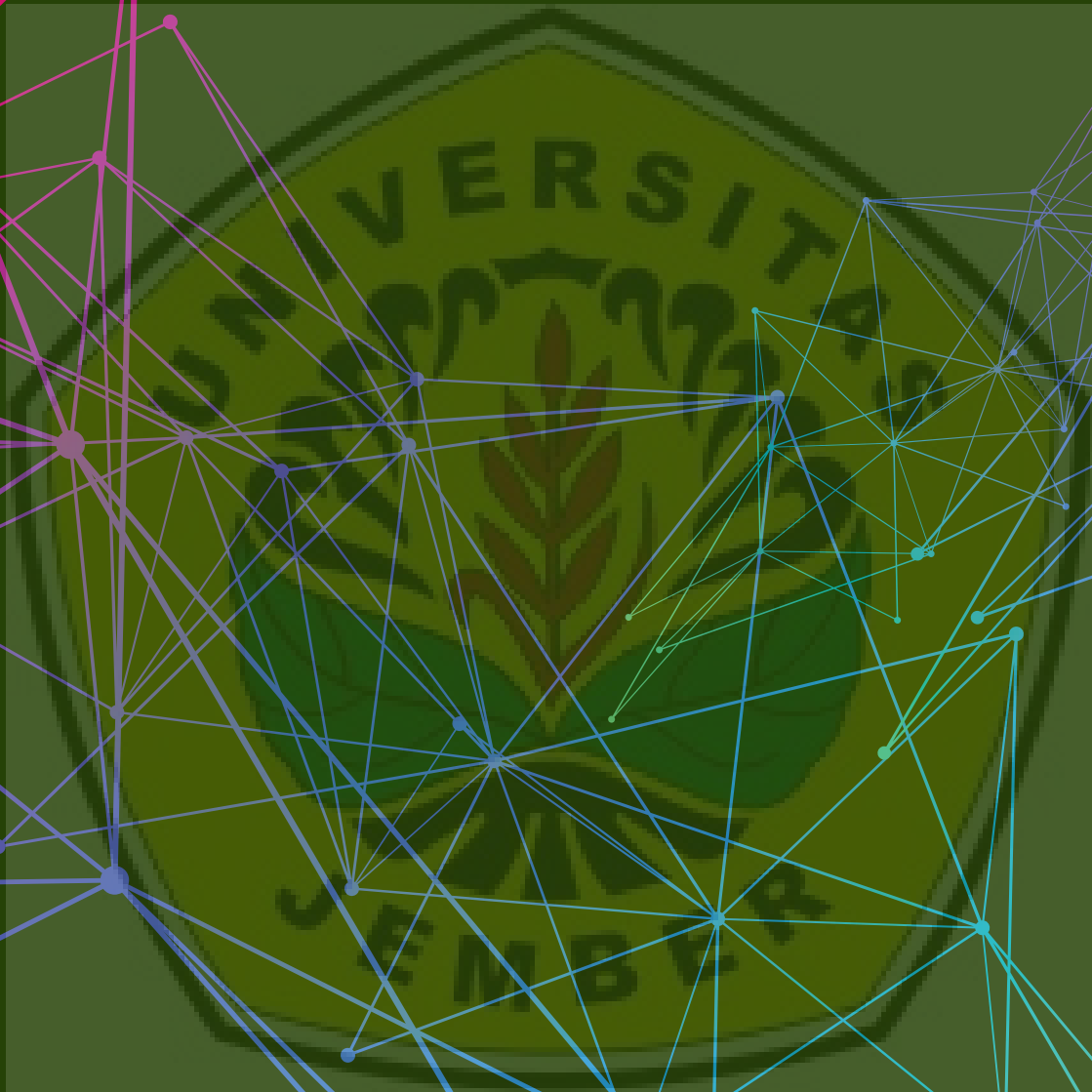
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